

**ROYAL CIVIL SERVICE COMMISSION  
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2012  
EXAMINATION CATEGORY: TECHNICAL**

**PAPER III: SUBJECT SPECIALIZATION PAPER for PHARMACY**

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<b>Date</b>	: 14 October 2012
<b>Total Marks</b>	: 100
<b>Examination Time</b>	: 150 minutes (2.5 hours)
<b>Reading Time</b>	: 15 Minutes (prior to examination time)

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**READ THE FOLLOWING INSTRUCTIONS CAREFULLY:**

1. Write your Roll Number clearly on the Answer Booklet in the space provided.
2. The first 15 minutes is being provided to check the number of pages, printing errors, clarify doubts and to read the instructions. You are NOT PERMITTED TO WRITE during this time.
3. Use either Blue or Black ink pen or ball point pen for the written part and Pencils for the sketches and drawings.
4. All answers should be written on the Answer Booklet provided. Candidates are not allowed to write anything on the question paper or any other materials.
5. It is divided into two sections-namely SECTION A and SECTION B.
6. SECTION A consists of two parts: Part I and Part II.

Part I consists of 30 Multiple-Choice Questions carrying one (1) mark each and is compulsory. The answer of your choice should be clearly written in whole along with the question and option number on your answer booklet. Eg. 31(c).

Part II consists of four (4) short answer questions of five (5) marks each and all questions are compulsory.

7. SECTION B consists of two Case Studies. Choose only ONE case study and answer the questions under your choice. Each case study carries fifty (50) marks in total.
8. This Paper consists of ELEVEN (11) pages including this Instruction page.

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**SECTION A**

**PART I - Multiple Choice Questions**

Choose the correct answer and write down the letter of the correct answer chosen in the Answer Sheet against the question number. E.g. 31 (c). Each question carries ONE mark.

1. An antidote for opioids (narcotic analgesics) is
  - a) Acetylcysteine
  - b) Methionine
  - c) Naloxone
  - d) Diazepam
  
2. Which one of the following is an osmotic laxative?
  - a) Glycerine
  - b) Senna
  - c) Sodium Picosulphate
  - d) Lactulose
  
3. The maintenance dose of Digoxin is usually given once a day because
  - a) It has short half life
  - b) It has no half life
  - c) It has long half life
  - d) None of the above
  
4. Which one of the following is a centrally acting antihypertensive drug?
  - a) Hydralazine
  - b) Methyldopa
  - c) Propranolol
  - d) Sodium Nitropruside
  
5. Which one of the following is NOT a calcium channel blocker?
  - a) Amlodipine
  - b) Losartan
  - c) Nifedipine
  - d) Verapamil

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6. To dispense an order calling for: Prednisolone 7.5mg, one t.i.d. X 5 days; one b.i.d. X 3 days; one o.d. X 3days, the total medication needed is:
- 25 tablets of 5mg tablet
  - 45 tablets of 5mg tablet
  - 33 tablets of 5mg tablet
  - 53 tablets of 5mg tablet
7. Salbutamol is a
- Long-acting anti-muscarinic bronchodialator
  - Short-acting anti-muscarinic brochodialator
  - Long-acting beta 2 agonist
  - Short-acting beta 2 agonist
8. All are examples of Atypical anti-psychotic drugs, except
- Olanzepine
  - Quetiapine
  - Amitriptylline
  - Risperidone
9. Chlorpromazine has
- Risk of contact sensitization, therefore tablets should not be crushed and liquid preparations handled carefully
  - Risk of loosing potency at room temperature, therefore needs cold storage.
  - No risk of contact sensitization.
- 1 only
  - 1&2 only
  - 3 only
  - 2& 3 only
10. As per the National TB guideline, which of the following is used for prevention of tuberculosis in susceptible children?
- Isoniazid 5mg/kg daily for 6 months.
  - Isoniazid 5mg/kg daily for 2 months.
  - Isoniazid 5mg/kg daily for 4 months.
  - Isoniazid 2mg/kg daily for 6 months.

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11. Which of the following is a second line treatment in HIV infection?
- a) 2NRTIs+ NNRTIs
  - b) 1NRTIs+NNRTIs
  - c) 1NRTIs+2NNRTIs
  - d) 2NRTIs+PIs
12. What is the Protease Inhibitor available in the Bhutan Essential drugs list?
- a) Atazanavir
  - b) Saquinavir
  - c) Indinavir
  - d) Lopinavir with Ritonavir
13. All of the following are aminoglycosides, except
- a) Gentamycin
  - b) Streptomycin
  - c) Neomycin
  - d) Erythromycin
14. Which of the following drugs needs to be avoided during pregnancy?
- a) Cloxacillin
  - b) Ceftriaxone
  - c) Efavirenz
  - d) Warfarin
15. Why is Insulin given by injection?
- a) It irritates the Gastro-intestinal tract
  - b) Insulin oral preparations cannot be manufactured
  - c) Insulin is inactivated by gastrointestinal enzymes
  - d) None above
16. In an elderly suffering from Diabetes why should Glibenclamide be avoided?
- a) Glibenclamide is short acting and is associated with lesser risk of Hypoglycaemia.
  - b) Glibenclamide is long acting and is associated greater risk of Hypoglycaemia.
  - c) Glibenclamide is short acting and is associated with greater risk of Hypoglycaemia.
  - d) Glibenclamide is long acting and is associated with lesser risk of Hypoglycaemia.

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17. Aum Dema, 28 years old, initiated on 4FDC approaches you seeking your advice on what would be the most appropriate contraceptive method. She informs that condom is not an option. What would be your suggestion then?
- Combined oral contraceptive pills until the treatment regimen is complete.
  - Combined oral contraceptive pills 4-8 weeks after completion of treatment regimen.
  - IUD until the treatment regimen is complete.
  - IUD to be continued for 4-8 weeks after completion of treatment regimen.
18. You see a prescription in your dispensary requesting for Torasemide 20mg but you have Furosemide 40mg in your Formulary. Which of the following factors you would consider while performing the therapeutic substitution?
- Only Pharmacokinetic parameters of the drugs
  - Only Pharmacodynamic parameters of the drugs
  - Both the Pharmacokinetic and Pharmacodynamic parameters of the drugs
  - Patient factors
- 1 only
  - 2 only
  - 3 & 4 only
  - 1 & 4 only
19. Which of the following chemotherapy drugs has highest risk of emesis?
- Methotrexate
  - Fluorouracil
  - Doxorubicin
  - Cisplatin
20. One of the employees in your dispensary reports that Ibuprofen 400mg tablet, batch no. BNA 142 has dark spots and has foul smell. You also find out that your dispensary does not have any other batch of Ibuprofen in stock. As the Pharmacist In charge, what would you do?
- Fill in the product defect form send to the Drug Regulatory Authority
  - With hold the use of the product
  - Inform all prescribers in your hospital about the Quality problem and stock status.
  - Inform the Drugs Vaccines & Equipment Division that your stock as problem and you will need replenishment.

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- a) 1 & 2 only
  - b) 2 & 3 only
  - c) 1, 2 & 3 only
  - d) 1, 2, 3 & 4
21. As per the National STI guideline the treatment for Chancroid is
- a) Benzathine penicillin 2.4 million units IM single dose
  - b) Metronidazole 400mg orally b.i.d for 7 days
  - c) Doxycycline 100mg orally b.i.d for 14 days
  - d) Ceftriaxone 250mg IM single dose.
22. You see a prescription written Hydrochlorothiazide 12.5mg o.d and the strength available in your Formulary is 25mg. What would be your most appropriate counseling point to the patient?
- a) Take this tablet once a day
  - b) Take half a tablet of once a day
  - c) Take half a tablet of Hydrochlorothiazide 25mg in the morning.
  - d) Take this tablet in the morning
23. What is the usual adult dose of Cloxacillin?
- a) 250mg b.i.d.
  - b) 250mg t.i.d
  - c) 500mg t.i.d.
  - d) 500mg q.i.d.
24. Patients taking Warfarin should avoid
- a) Grape fruit juice
  - b) Crane berry juice
  - c) Orange juice
  - d) None above
25. As per the National Guideline for treatment & management of HIV/AIDS, second line treatment is:
- a) AZT+3TC+NVP
  - b) AZT+3TC+EFV
  - c) TDF+3TC+NVP
  - d) AZT+3TC+LVP/r

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26. Estimation of drugs required for a given period is undertaken for the following reasons:

- 1) To avoid theft/pilferage.
  - 2) To avoid stock outs.
  - 3) To attract more patients to visit the centre.
  - 4) To prevent excess stock and therefore wastage through expiry.
- a) 1 only
  - b) 1 & 3 only.
  - c) 2 & 4 only.
  - d) None above

27. When receiving drugs at the health centre, ensure that:

- 1) All the drugs are coming from district hospital stores.
  - 2) Drugs received are not expired.
  - 3) Quantity issued corresponds to quantity indicated on the stores requisition/delivery form.
  - 4) The drug box is opened when those delivering are gone.
- a) 1 & 4 only
  - b) 2 & 3 only
  - c) 3 & 4 only
  - d) 1 & 2 only

28. Essential drugs are:

- a) Those that do not satisfy most health care needs
- b) Of good quality and available at all times
- c) Always given in their brand names
- d) Usually not affordable.

29. Efficient management of drugs will:

1. Ensure constant supply.
  2. Minimize wastage of resources.
  3. Maximize adverse effects of drugs.
- a) 1 only
  - b) 1 & 2 only
  - c) 1 & 3 only
  - d) 1, 2 & 3

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30. Buffer stock is:

- 1) The same as request quantity
  - 2) Security stock
  - 3) Expired stock
- 
- a) 1 only
  - b) 1& 2 only
  - c) 2& 3 only
  - d) 2 only

**PART – II : Short Answer Questions (20 marks)**

**Answer ALL the questions. Each question carries 5 marks.**

1. Pharmacists have a responsibility to ensure that patients can use their inhaled medications effectively and safely. Write in bullet points how to use metered-dose inhalers.
2. What are the key counselling points for patients administering eye drops?
3. When and how was the Essential Drugs Program established? Mention two mandates of the Essential Drugs Program.
4. Mention in points the functions of a Hospital Therapeutic Committee.

**SECTION B : Case Study**

Choose either Case 1 or Case 2 from this section. Each Case carries 50 marks.

**CASE 1**

Mr. Sonam, a 48 year old man, was identified by his doctor as having a resting blood pressure of 162/92mmHg. He was reasonably in good health and purchased Ibuprofen 400mg, which he took up to three times daily for arthritis type pain when necessary. He weighed 95 Kgs, was 5' 7" tall, and had a resting pulse rate of 82 beats per minute (bpm). He smoked 15 cigarettes per day and drank at least 1 bottle on 4 nights each week.

**Questions**

1. Why is it important to control blood pressure?
2. How would you assess Mr. Sonam's Cardiovascular (CVD) risk?
3. According to the current guidelines, should Mr. Sonam be treated for hypertension?
4. What non-drug approaches can Mr. Sonam adopt to reduce his blood pressure and/ his CVD risks, and why are these important?
5. What first line treatment would be suitable for Mr. Sonam's hypertension?
  - a. Name the drug.
  - b. Suggest a suitable initial dose, and any monitoring required.
  - c. What counseling would Mr. Sonam require?
6. What target blood pressure is appropriate for Mr. Sonam?
7. What other investigations, if any might be appropriate for Mr. Sonam as a patient newly diagnosed with hypertension?
8. Should Mr. Sonam be initiated on aspirin and a statin?

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### **CASE 2**

Mr. Lepo, a 50 year oldman came to the hospital complaining of increased tiredness over the last few weeks. He also complained of feeling thirsty and of going to the toilet frequently to urinate, especially during the night, which was unusual for him. His late mother had history of type 2 diabetes.

His random blood sugar was 11.5 mmol/L and his blood pressure (BP) 156/90mmHg.

His fasting glucose was reported as 8.1 mmol/L (reference range 6.0-7.0). Mr. Lepo admitted to smoking 20-30 cigarettes per day, drinking 400ml of alcohol a week, eats lots of sugary and fatty foods and doing little physical activity. He was obese, with weight of 105 kg (body mass index 32). His BP was 152/96 mmHg. The dietician advised Mr. Lepo to modify his diet and to increase his physical activity. A follow up after 1 month was scheduled.

### **Questions**

1. What risk factors does Mr. Lepo have for development of type 2 diabetes?
2. What are the management priorities for Mr. Lepo?
3. Outline a pharmaceutical care plan for the initial management of Mr. Sonam?
4. What dietary advice would you give to Mr. Lepo?
5. What information would you give Mr. Lepo about alcohol consumption now that he has diabetes?
6. How would you explain to Mr. Lepo why giving up smoking is so important, and how could you help him achieve this?
7. How long should Mr. Lepo be given to improve his glycaemic control through lifestyle measures before starting an oral hypoglycaemic agent?

After 1 month, his BP was 158/96 mmHg, weight 103 Kgs. His serum biochemistry and haematology results were normal except the following:

- HbA1c 8.6% (reference range 6.5-7.5%);
- Estimated Glomerular Filtration rate (eGFR) 71 ml/min/1.73m<sup>2</sup> (chronic kidney disease stage 2 if there is evidence of existing renal disease)

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- Total cholesterol 6.1 mmol/L (<4);
- HDL 0.9 mmol/L(>1.2) and
- Triglycerides 3.0 mmol/L (<2.3).

8. Which antihypertensive agent would be appropriate for Mr. Lepo and why?

Month 4 Mr. Sonam attended his 3 month review. His current medications are:

- Aspirin 75mg tablet
- Enalapril 5mg tablet
- Atorvastatin 10mg tablet

His BP reduced to 144/88mmHg. Weight reduced to 101 Kgs. His HbA1c was 8.2%.

9. Which oral anti-diabetic agent would you add and why?